



## SCIENCE & TECHNOLOGY OFFICE

The logo for the Science & Technology Office, featuring a stylized sun or starburst in a light blue circle.

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# **Astronomical Roentgen Telescope X-ray Concentrator (ART-XC) Project Status Apr, 2012**

- PI Dr Mikhail Gubarev/ZP12
- PM Jeff McCracken

**Project Description:**

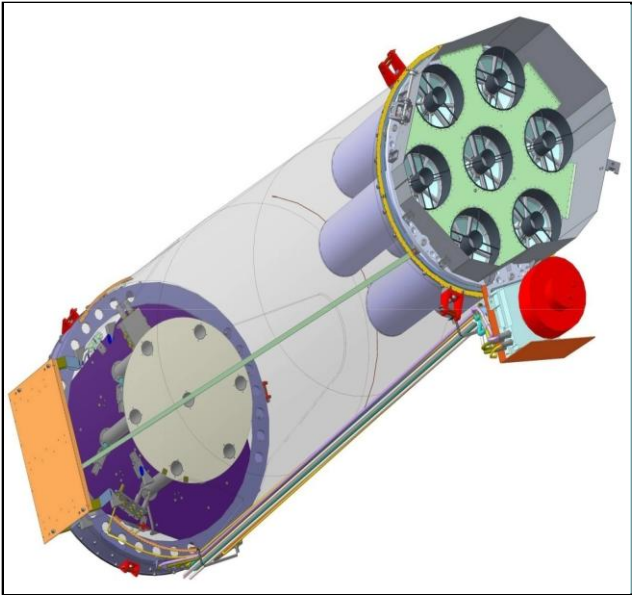
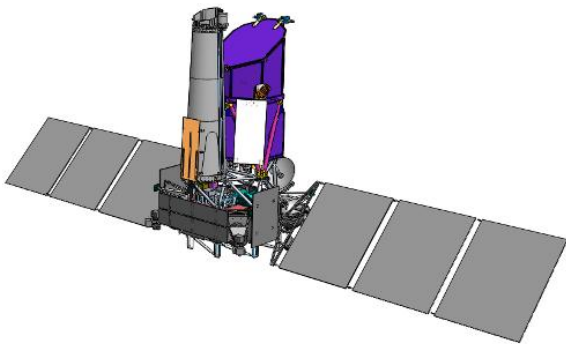
Deliver 1 engineering unit (6 shells plus dummy masses) and 4 flight units (28 shells/unit) to IKI

**MSFC Role:**

Provide project management, project science, optical design, mechanical design, fabrication, assembly, environmental testing and x- ray testing

**Customer:**

(IKI) Russian Space Research Institute of Russian Academy of Sciences



**Full Funding Profile (all years):**

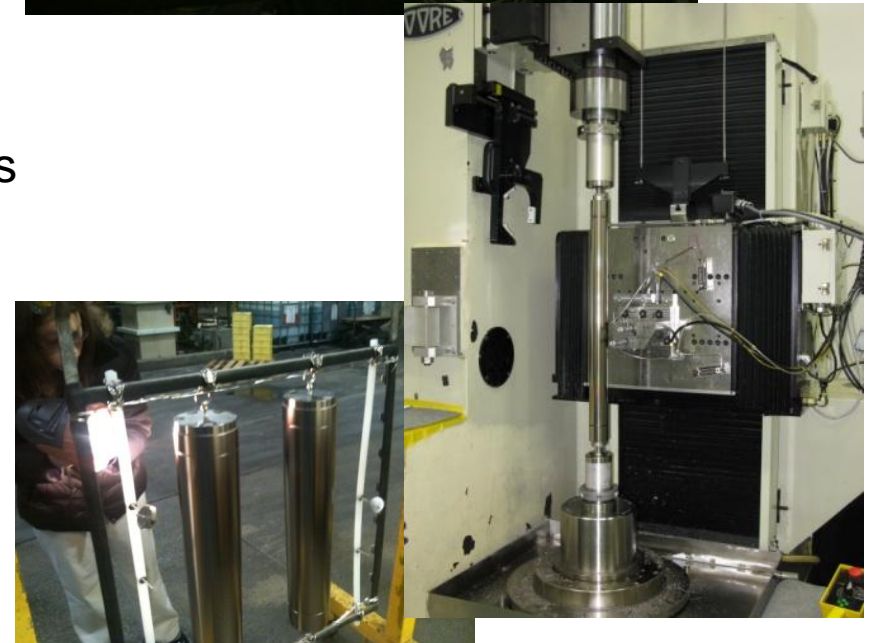
- Budget vs. Requirements (\$K)
- Reimbursable

WBS #	PY	FY11	FY12	FY13	Total
199008...					
Approved		1,405	3,006	716	5,127
Received		1,405	3,006		
Delta		0	0		

Funding on a 6 month cycle, not in sync with fiscal year

## ***Accomplishments:***

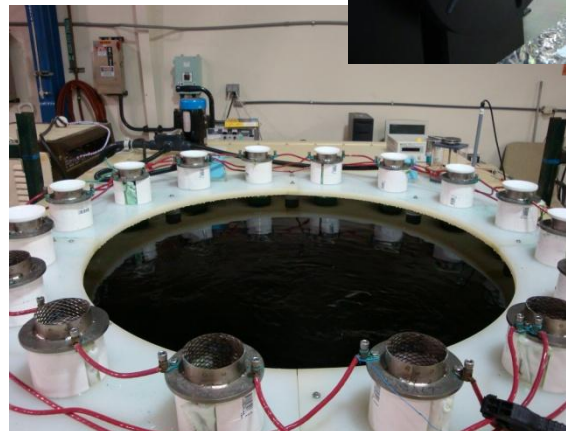
- ✓ 28 Aluminum blanks (plus spares) have been fabricated;
- ✓ 28 mandrels have been coated with electroless nickel alloy. Quality of the coating has been verified. The coated mandrels have been shipped to the diamond turning vendor.
- ✓ Diamond turning of the ART-XC mandrels has been started. The mandrel alignment procedure has been verified. The turned mandrels have been delivered to the MSFC and checked for the dimensional and surface quality.





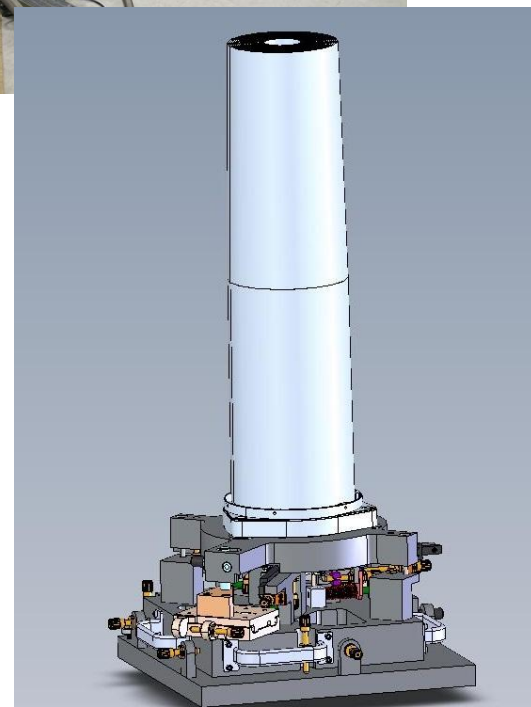
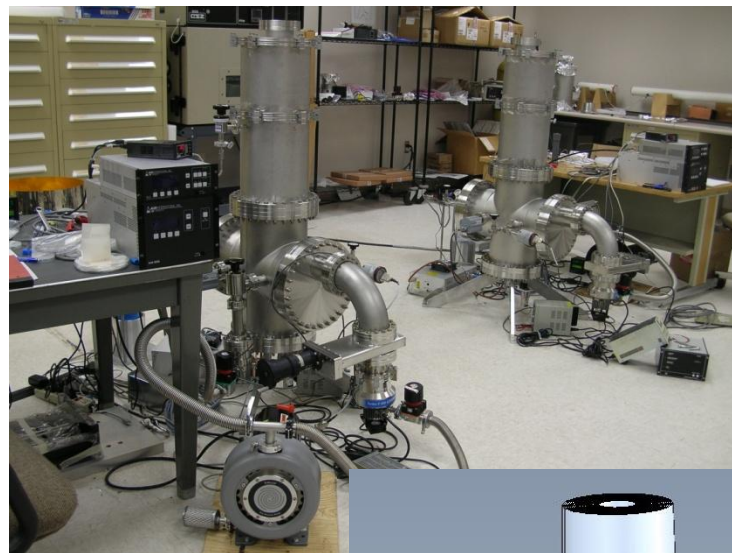
## ***Accomplishments:***

- ✓ Five polishing machines have been designed, fabricated, installed and tested. These machines will be dedicated to the ART-XC project.
- ✓ Polishing tools have been fabricated.
- ✓ Metrology equipment for the ART-XC project has been installed and cross-checked
- ✓ Polishing of the ART-XC mandrels has been started
- ✓ Additional plating bath has been designed, parts are fabricated. The bath is being assembled



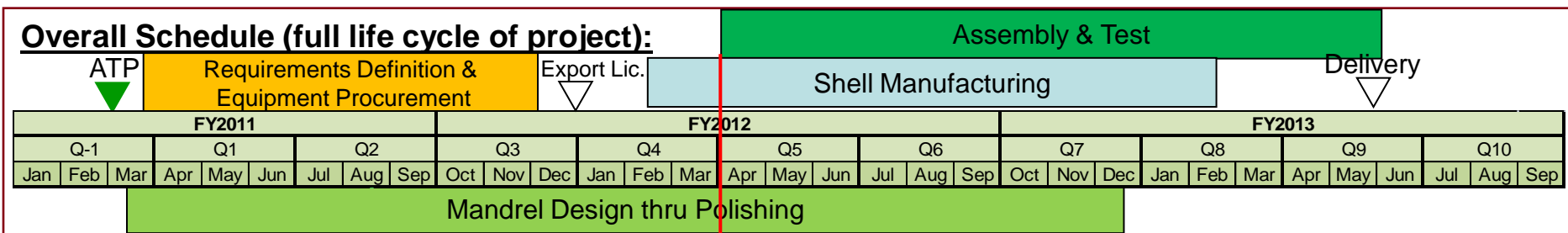
## ***Accomplishments:***

- ✓ Two vacuum chambers for the iridium coating has been assembled. Currently the chambers are being tested. They will be installed in close proximity to the electroform baths.
- ✓ Housing for the ART-XC modules has been designed. The design has been reviewed and approved by the IKI in February 2012. Fabrication of the spider for the qualification test is started
- ✓ The ART-XC mirror alignment station has been designed.
- ✓ Export license obtained from State Department for shipment of modules (engineering and flight units) and supporting data to Russia



## Look Ahead

- Continue receiving diamond turned mandrels – End May
- Continue mandrel polishing – November
- Spider manufacturing procurement issued – Late March
- Replicating bath integrations – Early April
- Sample shells replication continues – End April
- Iridium coating chamber ready for use – Early May



- Project is on schedule
- The third payment has been received